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THE OIL MELON - A VALUABLE NEW
OIL BEARING CROP

The cultivation of a wild oil bearing plant of a very high economic value in China's Yunnan has succeeded. The plant is called the "oil melon," and those succeeded in cultivating it are the scientists of the Hsi-shuang-pan-na Tropical Botanical Garden of the Academia Sinica. As an oil bearing plant, the oil melon is considered to be superior to the oil coconut and such like. If the crop is extensively cultivated in China from now on, it will not be exaggerating to say that it will greatly enrich China's economic strength, furnish the world with a new industrial crop unknown heretofore, and enhance the well-being of mankind.

Let us see what the oil melon is and how it has been successfully cultivated.

The Oil Melon

A wild creeper plant found in tropical forests, the oil melon grows in the low and humid places in the tropical forests of South China. Its natural area of distribution is between latitude 24° N and the equator. In China, it is found in the tropical and sub-tropical areas of Hsi-shuang-pan-na, Ho-k'ou near the Vietnam border, and Mang-shih near the Burma border in Yunnan, and from damp valleys tens of m above sea level to cool mountains 2,000 m above sea level in parts of Kwangtung, Kwangsi, etc.

According to classificatory botany, the oil melon belongs to the same family as the pumpkin and the water melon. A dioecian perennial, once planted, it will live and produce for decades. Blooming twice a year, the female bears fruit twice while the male flowers only without bearing fruit. The first bloom is between March and April, and the fruit matures between July and August. The second bloom is between September and October, and the fruit matures between January and February the following year. The wild oil melon produces 10 to 20 fruits a year.

Looking somewhat like a small water melon, the oil melon has six seeds about the size of duck eggs. When the skin of the seed is peeled, 2 to 3 fat and heavy kernels are found therein. The kernel is about the size of half of a hardboiled chicken egg. Its oil content is high, about 70% to 80%, which is 3 to 4 times that of the soybean, 1.5 to 2 times that of the rapeseed, and 1.5 to 3 times that

of the peanut. The oil extracted from the kernel is transparent and fragrant. When congealed, it resembles lard, and tastes almost the same. Hence, it is also called the "pork lard melon."

After the oil is extracted, the dregs contain over 70% protein, about twice that of the soybean, and serve as a tasty and nourishing food. It is not inferior to beef or fish in quality.

Cultivation Experimenting

By planting and acclimatizing, the scientists of the Hsi-shuang-pan-na Tropical Botanical Garden of the Academia Sinica succeeded in cultivating the oil melon. The agricultural and forestry production units have already begun to popularize it, and are in process of productive experimenting and popularization.

The person in charge of the study of the oil melon at the botanical garden is botanist Ts'ai Hsi-t'ao (5591 1585 7118), who discovered the wild oil melon as early as in 1933 at the present P'ing-pien Miao autonomous hsien (at the upper Sonkoi River which flows through North Vietnam). However, as it was during the period of the Old China, the botanists did not pay serious attention to its economic value or pursue any further study of it.

By the time the Hsi-shuang-pan-na Tropical Botanical Garden was established by the Kunming Botanical Research Institute of the Academia Sinica in 1949, the cultivation of the oil melon became one of its crucial research projects. Successive scores of botanical workers left no corner of the tropical forests unturned in search of the living habits and cultivation method of the oil melon, collected over 10,000 seeds, and experimented on their transplanting.

As they were ignorant of the habits of this wild tropical plant, when the seed was sown too deep, it would not obtain adequate air and moisture, and the sprouting rate would be very low; when the shading was not right, it would not receive sufficient sunshine, and its development would be retarded; when over-exposed to the sun, it would wilt. Furthermore, due to the shortage of rich organic fertilizer in tropical forests, the growth was unsatisfactory. The researchers dug out the rotted seeds from the ground for study, made careful records of the progress of the plant, and improved the cultivation method in regard to the moisture, soil, fertilizer, sunlight, and temperature. After repeated experiments, the growth pattern of the oil melon was discovered, and a series of cultivation techniques, including seeding and seedling care, transplanting, and management, were mastered.

Originally, the wild oil melon requires 2 to 3 years to flower and fruit, but, by cultivation, it blooms in 8 months and bears fruit the following year. In addition, the wild plant produces 10 to 20 fruits per plant, but, by cultivation, it produces 50 to over 100.

Another outcome of the research requiring special mention is

the success of propagation by cuttings. As mentioned before, the oil melon is dioecian, and the male produces no fruit. When seeds are sown, there will be approximately 500 male plants out of 1,000. In other words, half of them will bear no fruit. On top thereof, the variability of seed propagation is great. Thus, if the propagation problem was not solved, it would be very difficult to popularize the crop extensively. At the beginning, they tried to control the ratio of male and female plants by distinguishing their sexes from the exterior appearance of the seed and from its chemical reaction. But the attempt was not successful. At this point, based on the rule of sexless propagation of plants, they broke off a branch from a female plant in the stage of development and planted the cutting. After several years of repeated experimenting, they found the method feasible. In addition, they also discovered the proper ratio for male and female plants. In other words, 200 male plants in 1,000 plants are sufficient to pollinate the 800 female plants and cause them to bloom and bear fruit. The survival rate of propagation by cuttings reached 70% or more, and that of transplanted cuttings, 90%. The growth was good. Thus, extensive cultivation of the oil melon became practical and feasible. Besides propagation by cuttings, there are also such means of propagation as "yobigi" (the method of bending a branch, burying it in the ground and weighing it down, and severing it from the parent plant after it has rooted), seeding and seedling care, etc. In case of propagation by seeding, fresh seeds mature well, but seeds over 3 months old have a very low sprouting power. In case of cuttings, the rooting rate is highest between March and September.

By the foregoing cultivation methods, the shell of the seeds of a number of oil melons has become thin, the meat of the kernel thick, and the number of seeds and kernels greater. The possibility of cultivating superior varieties even more suitable for human consumption has appeared.

The Beginning of Extensive Cultivation

As discussed before, the natural distribution of the oil melon is south of latitude 24° N to the vicinity of the equator. The climatic adaptation of the oil melon is relatively wide, and the area suitable for its cultivation is far greater than its natural distribution. In other words, it may be cultivated in areas under 1,600 m elevation in temperatures not lower than -2° C. In China, many areas in provinces south of the Yangtze, such as Chekiang, Kiangsi, Szechwan, and Kweichow, are suitable.

At present, the cultivation of the oil melon has advanced from the trial stage in experimental farms to the stage of practical promotion by production units. Currently, in the southern and central parts of Yunnan, state agricultural and forestry farms and the frontier defense corp, altogether more than 20 units, are cultivating it

extensively, and the area of cultivation has reached several hundred mou, including scattered planting in empty spaces around residential houses and concentrated planting in large areas. For example, last year, the Meng-wang State Forestry Experimental Farm of Ching-hung hsien planted over 7,000 plants in 17 ha (15 ha = 1 mou) of land. Most of them matured splendidly, and the largest plants measured 5 m. The Hsi-shuang-pan-na unit of the Chinese People's Liberation Army planted over 600 plants in farms and scattered plots in recent years. Most of them flowered and bore fruit, and some of them produced over 100 fruits. The Mo-chiang Forestry Farm and the Hua-jen Agricultural Farm in southern and central Yunnan are trial planting it, and the Thai farmers in the Hsi-shuang-pan-na area have begun to plant it in empty spaces around their houses.

To popularize the oil melon cultivation techniques, the Hsi-shuang-pan-na Tropical Botanical Garden regularly sends seeds and relevant technical material to units cultivating the plant and assigns researchers to live in such units, working alongside the farm workers, frontier defense soldiers, and Thai peasants and teaching them the means of cultivation. The Liberation Army unit stationed in Hsi-shuang-pan-na is extremely enthusiastic over the popularization of oil melon cultivation. Under the slogan of "Let us serve as effective assistants to the scientists in popularizing advanced science," it regularly sends men to the botanical garden to learn the cultivation techniques, and many oil melon cultivation experts are trained by lectures and practical planting at the botanical garden.

While a great effort is devoted to the cultivation of the oil melon as discussed above, mass popular planting has not yet been launched because of the lack of sample farms for mass popularization, the ignorance of the important value of the crop on the part of many people, the fear of loss due to failure, the many problems concerning the arrangement of funds, land, and labor, and concerning cooperation with scientific research units, even in production units where cultivation has been started, and the shortage of manpower on the part of scientific research units if both research and popularization are undertaken. As the People's Daily of 10 April devoted a large space to this new crop and felt that it was urgent for the party and government leadership organs to strengthen the guidance on the popularization of oil melon cultivation, it appears that the cultivation of the oil melon will be rapidly promoted from now on.